

# Energy policy in transition: evidence from energy supply and demand in the UK

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## Abstract

Whilst much of Europe is turning to supplier obligations in order to compel energy companies to deliver energy efficiency improvements, the UK, after 18 years of using such schemes, will from 2013 have a financing scheme as the central delivery mechanism, relying fully on the market rather than government intervention. The remaining supplier obligation will focus on the areas that financing is not expected to fully support: more expensive insulation and help for those with no access to finance. In addition, the publicly funded fuel poverty policy is to be terminated: for the first time since 1978, there will be no taxpayer funded energy efficiency programme for the most vulnerable. These changes represent the biggest shift in the history of energy efficiency policy in the UK since the first and second oil crisis. Yet, despite appeals from many stakeholders, no period of transition will exist between the end of the current and the start of the new policies. The impact is likely to be stark: the expectation is for a dramatic reduction in the delivery of cost-effective energy efficiency measures leading to a big fall in employment and carbon reduction.

Plans for the supply-side are equally profound. In order to create a market with greater capacity and to encourage nuclear investment, the Government has unveiled plans for electricity market reform (EMR). For renewable generators, EMR will mark a change in policy support, from a quantity-based green certificate mechanism (the Renewables Obligation) to a price-based feed-in-tariff approach. In contrast to the approach on

the demand-side, Government is allowing a three year transition between these schemes.

The paper outlines the reasons for the different approaches to policy continuity across the demand and supply side. It highlights what we see as key considerations for policy makers when planning a transition from a supplier obligation to a finance mechanism. We assess the implications of this shift in terms of carbon reduction effort, the industry and fuel poverty.

## Introduction

Public policy is central to efforts to reduce greenhouse gas emissions. In a market economy, public policy is typically used to create viable markets for greener interventions, or to regulate against the most polluting ones. In the UK, the Renewables Obligation (RO) and the Carbon Emission Reduction Target (CERT) are two programmes established by Government to create a market for renewable electricity and energy efficiency measures respectively.

In response to such programmes, industry learns, adapts and deploys with the new marketplace, with the most profitable solutions exploited. As the programme develops Government might make interventions to adjust the programme scope or support level if the market is viewed as delivering sub-optimal outcomes, or is being over-generous. The removal of support for the distribution of compact fluorescent lightbulbs (CFLs) under CERT and several reviews to adjust support levels under the RO are examples of such interventions. If successful, these programmes become familiar to participants and investors, enabling markets and employment to grow. Any fundamental change in policy can therefore prove disruptive to the marketplace and must be considered carefully.

This paper considers the energy policy changes that the UK government is currently making within the RO and CERT programmes identified above. Regarding the former, Government is implementing a suite of policies under the banner of Electricity Market Reform (EMR). As part of EMR, support of renewable electricity generators will change from the RO (a quantity-based green certificate mechanism) to a system of contracts for difference feed-in-tariffs (CfD FIT).

Regarding energy efficiency programmes, whilst much of Europe is turning to supplier obligations in order to compel energy companies to deliver energy efficiency, the UK, after 18 years of using such schemes, will from 2013 have a financing scheme (Green Deal) as the central delivery mechanism, relying fully on the market rather than government intervention. The remaining supplier obligation (the Energy Company Obligation (ECO)) will focus on the areas that financing is not expected to fully support: more expensive insulation and help for those with no access to finance. In addition, the UK's publicly funded fuel poverty policy is to be terminated: for the first time since 1978, there will be no taxpayer funded energy efficiency programme for the most vulnerable. These changes represent the biggest shift in the history of energy efficiency policy in the UK.

Whilst these authors may question the efficacy of some of these policy developments, this paper instead focussed on the nature of the transitional periods being employed in order to draw lessons for policymakers in future: We suggest that more extensive consultation with relevant stakeholders, trialling new policies prior to full implementation and gradual tapering out of established policy instruments can mitigate against any negative impacts resulting from policy reform in energy demand and supply.

### Reforms and policy amnesia

Ideally, when deciding to implement new policy instruments, governments would look at current policy landscape, consider its past successes and failures, and carefully reflect the appropriate pace at which new policies are to be introduced. In reality, however, this rarely happens.

In his book 'Politics in time' Paul Pierson convincingly illustrates that a lot of social science focuses on immediate political and policy outcomes and more or less ignores the dimension of time – the impact of the past on the present and the future (Pierson, 2004). Similar arguments have been put forward by the historian Eric Hobsbawm who claims that not only social science but also 'policymaking and planning have pursued a model of scientism and technical manipulation which systematically, and deliberately, neglects [...] historical experience' (Hobsbawm, 1998, p. aa). There is evidence that this applies across the policy spectrum including areas such as health policy (Pollitt, 2008), anti-terrorism policy (Field, 2009), education policy (Hargreaves and Goodson, 2006), environmental policy (Dovers, 2000), urban policy (Shaw and Robinson 1998), and fuel poverty policy (Higgins and Lutzenhiser, 1995).

Hence, rather than being conscious of the past, policy making can often be characterised by 'ad hocery' and 'policy amnesia' (Dovers, 2000, p. 140). With limited institutional memories, it is not surprising that historical experience is not considered in its entirety – memory only goes back that far. But even quite

recent experience and the lessons that could be learned from it are 'too often overlooked in the rush of near term imperatives, expediencies and policy fashion' (ibid). This is because 'conventional political processes often block learning because ideology overrides evidence' (Metcalf, 1993, p. 302).

Ignoring the past, however, can have significant impacts on the durability and sustainability of future policy. The failure to recognise and learn from the successes and blunders of the past often leads to badly informed decisions and policies, which do not achieve what they were designed for. This phenomenon has been coined the 'implementation gap' (Marsh and Rhodes, 1992) and evidence shows its regular occurrence (Ferman, 1989). Unsuccessful reform, in return, can lead to cynicism and there is a danger that future policy alterations will face a high degree of scepticism making further reforms difficult to achieve (Patashnik, 2008).

Due to the 'tendency to be dazzled by a particular technology or method' (Grabosky, 1995, p. 363), governments frequently introduce new policy instruments paying insufficient attention to the legacy of the existing instrument portfolio. We illustrate in the following that this phenomenon appears to occur in the context of current policy reforms of energy demand and supply policies in the UK.

### UK demand side policy – Green Deal

#### POLICY MIX BEFORE AND AFTER

Traditionally, domestic demand side policy in the UK incentivising energy efficiency improvements consisted of a portfolio involving regulations (such as for new buildings and major alterations of existing buildings), taxpayer funded grant programmes (including Warm Front and similar programmes in the devolved administrations), and, most importantly in terms of scale, energy or carbon savings obligations (the Carbon Emissions Reduction Target (CERT) and its predecessors (Rosenow, 2012)). **All of the above require a high degree of government intervention** – in case of building regulations the government defines the minimum energy performance standards, grant programmes are funded by public expenditure administered by government, and although energy savings obligations put the onus on energy companies, it is the government setting the targets and specifications of delivery. Most effort was directed towards take-up of low cost energy efficiency measures such as efficient boilers, cavity and loft insulation. The result has been remarkable – from 2004 to 2011 not for temperature corrected domestic gas consumption decreased on average by 5 % per year (DECC, 2012c), our own calculations show that if temperature corrected the figure is about 3.6 %. Most of this reduction relates to energy efficiency improvements (Centre for Economics and Business Research, 2011) largely triggered by the Energy Efficiency Commitment (EEC) 1, EEC 2, and CERT.

Despite the apparent success, the UK government decided to radically overhaul the existing system at an unprecedented pace. Energy savings obligations will be directed towards *high* cost measures such as solid wall insulation, even though international experience has been to use such obligations mainly for *low* cost measures (Eyre et al., 2009; York, 2008). Almost all support for low cost measures is supposed to come through the Green Deal, the new flagship programme for building re-

furbishment. The Green Deal is an on-bill finance mechanism and allows loans for investment in energy efficiency measures to be attached to the property rather than the owner (Rosenow and Eyre, 2012). Also, for the first time since 1978, there will be no taxpayer funded energy efficiency programme for the most vulnerable. The only remaining fuel poverty policy consists of provisions for low-income households in the Energy Company Obligation (ECO), the current energy savings obligation in place.

Overall, the Green Deal determines the policy landscape: Because of its Golden Rule, which prescribes that cost savings from energy efficiency measures must be larger than the investment, only low cost technologies are eligible. Low cost measures were previously targeted by energy savings obligations, a quantity based instrument, where the outcomes are more or less certain. In contrast, the Green Deal does not require a specific level of delivery, it is left entirely to the market and the outcomes are uncertain. The implications are profound. We analyse the proposals regarding their effect on carbon savings, fuel poverty, and the supply chain.

#### TRANSITION IMPACTS:

##### Carbon savings implications

Projections for the Green Deal of expected carbon savings are provided by the Department of Energy and Climate Change (DECC) in the Impact Assessment of the Green Deal and the Energy Company Obligation and indicate that the impact on carbon reduction will be significantly below past policies. Such projections are, of course, subject to various challenges and based on various assumptions. However, they provide a guess-estimate which indicates the degree of the policy's efficacy.

The Impact Assessment estimates that by 2022 the Green Deal and the Energy Company Obligation together will result in savings of 84 million tons of non-traded (emissions not covered by EU ETS) CO<sub>2</sub> (lifetime) and 44 million tons of traded (emissions covered by EU ETS) CO<sub>2</sub> (lifetime) (DECC, 2012d). This equates to 12.8 million tons of CO<sub>2</sub> (lifetime) per year. Compared to the existing policies ECO and the Green Deal will result in significantly lower carbon savings. Per year, current policies (CERT and CESP) deliver about 68 million tons CO<sub>2</sub> (lifetime) in savings (based on DECC, 2009a; DECC, 2010a). Hence, over the period 2013–2022, the Green Deal and ECO will only deliver 19 % of the carbon savings that the current policies (years 2009–2012) achieve.

There are a number of factors that contribute to the reduction:

1. The estimates of savings from individual measures are lower now than in CERT, e.g. 2.67 MWh/year for cavity wall insulation (CWI) compared to an estimate of 3.54 in MWh/year in CERT. This is due to a change in methodology, from an approach that may lead to an over-estimate to one likely to produce an under-estimate.
2. ECO and Green Deal are focused on buildings, so that the lighting and appliance measures which contributed significantly to CERT, and even more to earlier obligations, are not included (although the non-domestic part of the Green Deal includes some lighting measures).

3. Last, but probably most important, there is a significant reduction in the projected rate of installation of key insulation measures – cavity wall insulation and loft insulation – which is not compensated for by rising rates of solid wall insulation (SWI). This is driven by excluding standard CWI and loft insulation from the Carbon Saving obligation.

However, there are a number of caveats to this comparison:

1. During the first 4 years of CERT 21.4 % of savings were delivered from lighting measures which included mainly CFLs. After almost 300 million CFLs had been distributed (DECC, 2010b), CFLs ceased to be eligible under CERT because of concerns that savings from CFLs might not be additional any longer because those might not have been installed (OFGEM, 2011). Hence, part of the accredited savings need to be deducted to allow for a more accurate comparison. Given that CFLs are no longer eligible and that 82.5 % of the total obligation had been delivered at the end of year 4, the contribution to the total savings at the end of the scheme will be 17.7 %. Deducting all of the CFL savings, the Green Deal and ECO achieve 22.6 % of the policies in place before 2013, CERT and CESP.
2. The Green Deal savings include a large share of savings from the non-domestic sector, about 38 % are projected to result from measures being delivered in this sector (DECC, 2013). However, CERT and CESP did not include any non-domestic sector savings.

Although it is not possible to determine the exact size of the actual reduction in terms of policy effort, the analysis above shows that it is substantial.

##### Fuel poverty implications

As illustrated above, the only significant fuel poverty policy will be the ECO, an energy savings obligation. Such programmes were never intended for reducing fuel poverty and primarily geared towards energy and carbon savings. Using energy savings obligations for fuel poverty alleviation unavoidably creates tensions (Rosenow et al., 2012). Raising revenues for energy efficiency programmes via the energy bill, which is the case with energy savings obligations, is by default regressive if cost pass through is unregulated (ACE, 2011). **Historically, regressive impacts were counterbalanced by progressive delivery of measures by allocating a large proportion (currently 40 %) to low income customers.** A comprehensive analysis of the extent to which this has been achieved is missing, but given that most households received energy efficiency measures in the past and that these were generally highly cost effective, all income groups benefitted. Moreover, at least until 2008, contributions from households were relatively small with €3 and €7 per customer per fuel per annum in 2002–2005 and 2005–2008 respectively (Lees, 2006, 2008), **potential effects for those households who did not benefit from the obligations were likely to be low.** An evaluation of the cost to households of the last obligation period (2008–2012) is missing, but government estimates illustrated that they are likely to be around €58 (DECC, 2009b, 2010a; DEFRA, 2008).

With the design of ECO, the situation is different for a number of reasons. First, although the UK government predicts that the overall cost of the programme will be similar

to current contributions made by consumers, the actual cost are likely to be much higher than past obligations (NERA, 2012; Platt et al., 2012; Rosenow et al., 2012). This exacerbates the regressive impacts on the revenue raising side. Second, ECO will focus on high cost measures such as solid wall insulation and hard-to-treat cavity wall insulation. Therefore a smaller number of households will receive energy efficiency measures reducing the number of those who benefit and increasing the proportion of consumers who pay but do not receive any measures. Third, the provisions in the ECO are weak in terms of their targeting of low income groups. The Affordable Warmth obligation, defined as lifetime energy cost savings within a group of low-income customers on certain benefits, is designed in a way that only 37.2 % of measures will be delivered in fuel poor homes. Only 26.9 % of the benefits of the second fuel poverty element in ECO, the Carbon Savings Communities obligation, reaches fuel poor households (Probert et al., 2012).

As a result, the effect on fuel poverty reduction is limited: The Government has stated that the ECO will result in 125,000 to 250,000 households being taken out of fuel poverty by 2023 when ECO is supposed to conclude and does no longer add costs to household energy bills and all measures have been installed (DECC, 2012d). The number of households in fuel poverty according to the current definition is 20 to 40 times this figure (DECC, 2012b). **Assuming the same effort continued after 2023**, it would take 200–400 years to take all households out of fuel poverty.

#### Employment effects

DECC, instead, stress that under the Green Deal and ECO by 2015 the number of jobs will have increased from 26,000 in 2012 to 60,000 in 2015, i.e. an increase of 130 % (DECC, 2012f). This figure is, however, the upper estimate, the lower estimate is frequently left out. The upper estimate is based on the assumption that there will be almost 10,000 installers of insulation in 2015 and that for each installer an additional 4.75 jobs in the supply chain are created (DECC, 2012d). The ratio of installers to supply chain jobs, or direct to indirect employment effects, is based on a study commissioned by government assessing the UK market for low carbon and environmental goods and services (Innovas, 2009). **The lower estimate results from using a ratio of job to capital spending for housing repair and maintenance provided by Construction Skills** (the Sector Skills Council for construction). This estimated ratio of job to capital spending for housing repair and maintenance is 32.6 jobs per £1m (€1.2m in 2012 prices) output. Assumed total capital investment in 2015 of around £1.08b (€1.3b in 2012 prices) results in 35,000 jobs in the whole of the insulation industry (direct and indirect employment effects). A further 3,500 Green Deal Assessors are added to this.

The insulation industry claims that the plans for the Green Deal and the ECO will cause job losses of 16,000 in 2013 (Insulation Industry Forum, 2012). This claim is based on a report produced by the Association for the Conservation of Energy (ACE, 2012a), which concludes that employment figures will decrease rather than increase. ACE use more or less the same method for establishing a high and a low estimate as DECC.

An important difference between the government's assessment and the figures produced by ACE is that the figures for

the status-quo, i.e. the reference point, differ significantly. DECC claim that in 2012 there were 26,000 jobs in the insulation industry and its supply chain, ACE provide a much higher estimate of 44,988–56,829 based on the number of measures likely to be delivered by CERT and CESP (ACE, 2012b). It is unclear how DECC arrive at the figure of 26,000 jobs in 2012, but in the impact assessment of the Green Deal and the ECO, DECC compares the expected uptake to the year 2007, when there were 4,700 installers i.e. about 27,000 total jobs when applying the 4.75 factor used for including the supply chain jobs. It seems that DECC compare the projected number of jobs to 2007 levels. This approach is deeply flawed given that the CERT target in the period of 2008–2012 was 2.4 times higher than it was in the previous obligation period. While the exact number of jobs in 2012 is unknown, it is likely to be above 40,000 given the significantly higher targets in place after 2008.

ACE's lower estimate for the years post-2012 are based on the number of measures projected by government, the assumed capital expenditure of those, and the same ratio as used by DECC of 32.6 jobs per £1m (€1.2m in 2012 prices) output. The higher estimate is calculated by converting the number of days required in order to deliver the number of measures projected by DECC into full time job equivalents. Using the same method as DECC, ACE applies the 4.75 factor for the supply chain resulting in the total number of jobs. Both methods show a decrease in the number of jobs of about 20 % by 2015. This is because of the reference point in the year 2012, which is, as described above, much higher in ACE's analysis.

Research commissioned for Knauf Insulation estimates that initial job losses would account for only 3,000 in the loft and cavity wall insulation business with rising employment figures for solid wall insulation offsetting some of the loss (Europe Economics, 2012). This research does not, however, support DECC's claims of steeply rising employment figures after 2012.

#### DIFFERENCE UNDER A MORE SUSTAINABLE TRANSITION

Whilst we can have some confidence that the suppliers will achieve the targets set them under the Energy Company Obligation, the big uncertainty with the delivery of energy efficiency under the new policy-mix is the likely success or otherwise of the Green Deal.

Never before has a financing mechanism without additional subsidies been the centrepiece of a national government's energy efficiency programme. The most prominent loan programmes such as the CO<sub>2</sub>-Building Rehabilitation Programme in Germany received substantial amounts of public funding to lower the interest rates (Rosenow, in press). Whilst finance mechanisms without additional subsidies such as the Green Deal have been used before, particularly across the US, they have always been introduced as an option and never achieved mass take up.

Much will depend on the nature of the offers to households and businesses, the ease of the accessing the scheme, the acceptance of a Green Deal charge on the deeds by the housing market, and accompanying incentives and regulations put in place, and the degree to which Government and industry can encourage take-up via marketing. At present, it is highly uncertain how many households and businesses will want to take up Green Deal, or through which business models it will be



delivered. Such uncertainty may create opportunities for new entrants and therefore generate some useful innovation. But, in the short term, it is anathema to the businesses and industries that have been built up around the relatively predictable supplier obligations.

ACE (2012b) in 2012 suggested a potential solution that would enable Green Deal and ECO to launch, whilst giving the industry more confidence over the continued delivery of lower-cost energy efficiency measures. Their proposal centred on allowing the low-cost measures to contribute to the ECO to a limited extent and for a limited period, regardless of whether the measures had been financed through the Green Deal by the consumer, or through the conventionally supplier obligation subsidy. Were the Green Deal to prove successful and most measures installed via that mechanism, these measures could be removed from the supplier obligation. Conversely, if the Green Deal failed to gain interest, Government would be able to amend the offering without the negative impact on the delivery of energy efficiency measures and industry jobs that would otherwise ensue.

## UK generation policy – Electricity Market Reform

At the same time as implementing sweeping changes to the way in which energy saving measures are funded and delivered, the Government is undertaking the most fundamental reforms to the electricity market since liberalisation in the 1990s. Again, transitions between the existing and forthcoming suite of policies will be crucial to sustaining the confidence of existing investors, and attracting further investment in new electricity infrastructure.

### POLICY MIX BEFORE AND AFTER

#### Current policy mix

At present, the UK electricity market can be thought of as an energy-only market with additional support for renewable generation. Power is typically traded directly between suppliers and generators through a mixture of over-the-counter trades and short-term auctions. The majority of electricity is traded between generators and suppliers within the same company group, so that in practice the market is dominated by vertically integrated companies, with other companies exposed to higher price risks (OFGEM, 2012b). After gate-closure (one hour before delivery) the system operator balances supply and demand through a system of Bid-Offer Acceptances. Imbalance is settled post-delivery at the prevailing imbalance prices, and are dependent on whether both the generator (or supplier) and market overall are short or long in contracted supply (or demand). Under these arrangements, future capacity constraints are expected to produce high prices in forward markets, signalling higher returns and profitable conditions for further investment in capacity.

The Renewables Obligation (RO) was introduced in 2001 to encourage the development of renewable electricity, and more latterly ensure sufficient generation for the UK to meet its EU renewable energy targets. Under the RO, accredited renewable generators sell their power on the market and in addition receive a Renewables Obligation Certificate (ROC) for each MWh of electricity they generate. Each year energy suppliers

are required to surrender sufficient ROCs to cover a defined proportion of the energy supplied, or pay a 'buy-out' price to cover any shortfall. The 'buy-out' receipts are returned to suppliers in proportion to the number of ROCs they surrendered; meaning the value of a ROC is the value of the 'buy-out' price plus the recycled revenues (OFGEM, 2012a).

#### Rationale for change and new policy mix

Government have concerns that the existing market arrangements will not deliver upon their energy objectives: to deliver secure, low carbon energy to consumers at lowest cost (DECC, Electricity Market Reform: policy overview). They believe the existing electricity market provides insufficient certainty to new investment in either low carbon generation or flexible thermal capacity to ensure secure supplies, whilst the current prices of carbon and coal risks the construction of new unabated coal generators with high carbon emissions. They view the certificate-based RO as a relatively expensive way of decarbonising, with no support being offered to other low carbon generators, notably nuclear and CCS.

As a result, in the White Paper of July 2011 (DECC, 2011a) and the Technical Update of December 2011 (DECC, 2011b) they set out proposals to introduce a series of policies known collectively as Electricity Market Reform (EMR). EMR consists of four key components:

1. Carbon floor price.
2. Capacity Mechanism.
3. Emissions performance standard.
4. Feed-in-Tariffs with Contracts for Difference.

1–3 above are new interventions that seek to prevent additional unabated coal plant, increase the price of carbon for developers when making investment decisions, and ensure adequate electricity capacity. Since they are new additions to the policy mix rather than evolutions from existing policies, they are not considered further within this paper.

Item 4, is of most interest when considering transitions. Government plans to replace the current support mechanism for renewable electricity – the RO – with a system of Feed-in-Tariffs with Contracts for Difference (CfDs) (DECC, 2012a). CfDs are a form of feed-in-tariffs that continue to incentivise generators to sell their output in the electricity market. Payments are based around two prices:

- A strike price, which is the net price that a generator would hope to achieve for each unit of power, and
- A reference price, which is the price that the generator would likely receive for power sold on the market.

Under CfD, a generator would sell their output on the market and receive (or repay) a CfD payment in addition. The CfD payment would equal the difference between the strike price and the reference price: where the strike price exceeds the reference price, the generator receives a top-up payment; where the reference price exceeds the strike price, the generator will make a repayment of the difference. As a result, the generator has greater certainty over future revenue streams than under the RO where wholesale prices and (to a lesser degree) ROC prices fluctuate.

Table 1. Key differences of support for generators under the RO and CfD.

	RO	CfD
Eligibility	-Most renewable electricity generators	-New generation that would have been eligible for the RO plus nuclear and CCS
Wholesale price	-Exposed to fluctuations, though utilities have developed vertical integration and complex hedging strategies to mitigate risks	-CfD provides natural hedge against wholesale price risk
Magnitude of policy support	-Value of ROC is fairly stable around the buy-out price with limited risk of oversupply -ROC price is set by the market	-Will vary inversely with the wholesale price. -Strike prices set administratively by DECC initially, before moving to technology specific auctions.
Length of support	-20 years	-Likely to be 15 years for renewable generators
Contract awarded	-After the commissioning of the first turbine	-Once applied for. Could be as soon as planning permission and promise of grid connection have been achieved. Earlier contract could increase risks.
Penalties	-Plant can be fined or ROCs revoked for misdemeanours	-Failure to commission on time or meet milestones can ultimately result in CfD termination

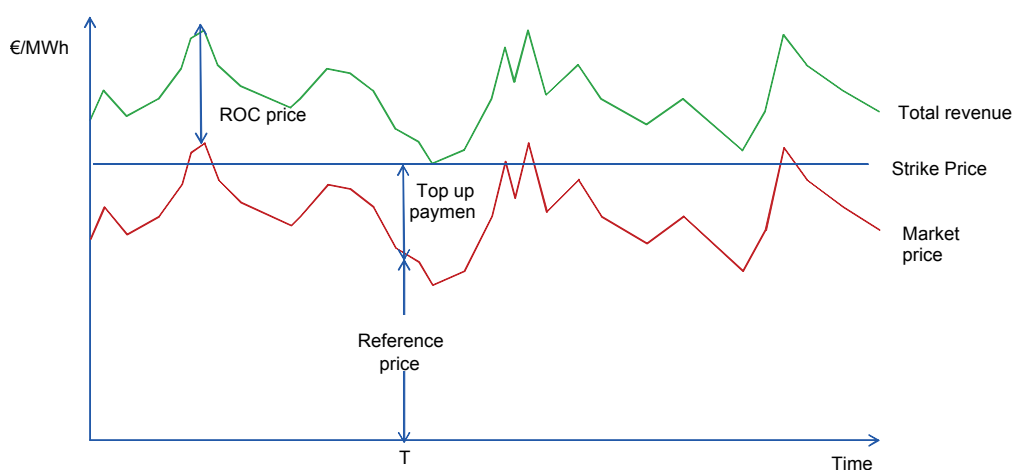


Figure 1. Illustrating the difference in revenue structure based on wholesale price and support mechanism under the RO (green) and CfD (blue). Whereas the RO provides a relatively stable premium above a variable market price, the CfD support balances the market price to give a stable revenue set at the strike price.

Figure 1 illustrates the difference in revenue that a generator might receive under the RO and the CfD support, with Table 1 outlining some of the key differences between the policies.

#### POLICY TRANSITION

Throughout the development of EMR policy, and in contrast to the policies on the demand-side, the UK Government has repeatedly stated that “it is essential that the period of transition between the current and new market arrangements runs smoothly and allows investment to continue” (DECC, 2011a). In order to foster this smooth transition, Government allowed for an overlap between the point at which developers can secure CfD contracts – beginning in August 2014 – and the point at which the RO is closed to new entrants – 31<sup>st</sup> March 2017 – as illustrated in Figure 2.

This apparent 32 month transition is not as long in practice owing to the differences in the nature of the two schemes. The RO cannot be entered into until at least part of the generation is commissioned – that is, constructed and generating electricity.

By contrast, Government intends, and indeed project financiers will require, that developers secure a CfD well before construction begins, else they risk developing without guaranteed access to financial support.

This risk becomes rather more real once the Treasury’s cap on support – the Levy Control Framework (LCF) – is considered (HM Treasury, 2011). Once this cap is reached, no further CfDs will be issued to developers, making it crucial that a contract is secured early in the development process. Government have indicated the LCF will limit support for low carbon electricity generation to £7.6bn (€8.7bn) by 2020 (in 2012 prices) (DECC, 2012e).

Furthermore, it is expected that Government would aim for CfDs to be less generous (though more stable) than under the existing RO in their support, as part of the long term plan to phase out subsidies. As a result, any CfDs awarded in 2014 are highly likely to be for assets that are pre-construction and not expected to be able to meet the deadline for acceptance into the RO.

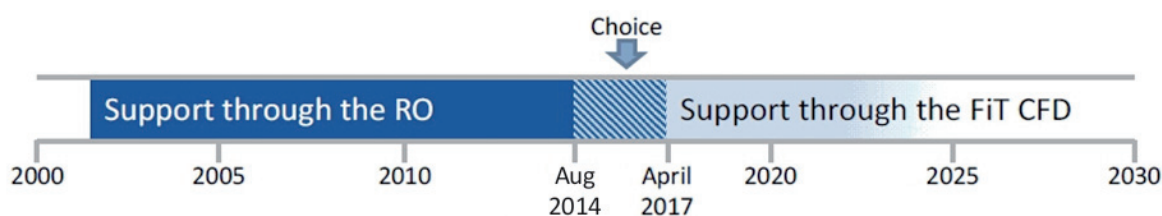


Figure 2. There exists a 32 month transition between the start of CfD contracts and the closure of the RO to new entrants.

The shift from ‘support on completion’ to ‘contract for support pre-construction’ means that in practice the transitional period differs for different technologies, and essentially disappears for technologies that would seek to secure a CfD contract three or more years prior to project completion. This would be the case for Offshore wind projects in particular: the long lead times mean that projects currently developed might not be commissioned in time to meet the closure of the RO, yet at present lack any certainty around the level and availability of support through CfDs. For such projects, there is no transitional period to speak of.

In order to support those sites currently being developed that require confidence over support levels now, yet have lead times such that they will not be commissioned until after April 2017, Government have put in place Investment Instruments to offer some certainty. These are bilateral contracts between a developer and Government which offer certainty on access to support under CfD before the contracts are launched in 2014. Even so, these contracts have to be negotiated directly with Government, cannot be signed until the primary legislation clears Parliament, and does not overcome the risks associated with the unfamiliarity of a radically different support mechanism.

#### Continued uncertainties

The appropriateness of the transitional period is further complicated by the numerous aspects that remain to be confirmed by Government concerning the details of the CfD and even their legality. At present, developers and investors have no sight of the likely strike-prices for supported technologies; do not know how the CfDs will be allocated beyond an initial first-come, first-served period; are unsure of how long they will have to commission their plant before the length of their support begins to reduce (the length of the ‘target commissioning window’) or the contract is cancelled (the ‘longstop date’); whether support will be fully or partially indexed; or whether a refinancing clause will be included by Government. Further, there is no certainty that CfDs will be approved under State Aid rules by the European Commission, particularly as they go beyond the RO in offering support to nuclear power. With much detail yet to be confirmed and timescales tight, it is very possible that the commencement of CfD contracts could slip, reducing the period of transition still further.

It is clear that developers and investors will have to wait until at least 2014 to see the CfD allocation mechanism in operation, and longer still (once these projects are commissioned) before they get sight of the payment flows in operation.

#### IMPACTS

The relatively early stage of the EMR reforms compared to those on the demand-side means that it is difficult to gauge the impact of the transition process as proposed. It is clear however that such a radical change in the manner of support for renewable electricity generation will require a period of time before developers and investors have confidence in the policies, and that policy development has been undertaken with a high level of awareness of these risks.

Even at this early stage, the policy proposals are leading to headlines citing an investment hiatus due to a lack of sufficient transition. Some organisations are calling for the extension of the Renewables Obligation to 2020 to create a longer period of overlap (e.g. REA, 2012), whilst market analysts have downgraded the position of the UK in terms of the environment for renewable energy investment (Ernst & Young, 2012).

#### Synthesis/Discussion

Any change in support mechanism is an opportunity to change the level of support, and there are interested parties on all sides that might wish to see those support levels adjusted in either direction. Those receiving support will therefore seek to ensure that the level of support is maintained or increased during the change. The level of transition is an area where parties can claim to be negatively impacted, in the hope that such arguments will preserve the existing schemes for longer, or ensure a greater level of support as compensation under the scheme that follows. With this in mind, it is important to treat claims with some caution.

Whilst some aspects of policy reform, notably the carbon floor price, affect both energy efficiency and renewable energy, the two reform packages have been undertaken by separate officials at different times in different parts of the same Government department (the Department of Energy and Climate Change, DECC). It is clear that there has been relatively little interaction between the two. The supply side reform shows greater willingness to intervene in markets, recognising the difficulties of securing transformational change in a free market system. On the other hand, the demand side reform involves the reverse – the return to an approach with more faith in the market to deliver energy efficiency.

More specifically, the Green Deal energy efficiency package is poorly integrated with the separate proposals for encouraging renewable heat in households, with the latter reliant on a new incentive scheme (the Renewable Heat Incentive) and small scale FITS introduced just as incentives for most energy

efficiency technologies are phased out. And the electricity market reform proposals place minimal emphasis on energy efficiency. In particular they neglect the option of paying a feed-in tariff for energy saving or efficiency despite a recent literature on this (Benton, 2011; Bertoldi, 2009; Eyre, 2013). The 'non-joined-up' approach is evident from the inclusion of this idea in a separate consultation on electricity demand reduction published alongside the electricity market reform proposals. This consultation also includes the option of a supplier obligation for electricity efficiency, somewhat strangely as the consultation period includes the date of the end of CERT – the point at which provision for most electricity saving options in supplier obligations is terminated.

Moreover, DECC is generally not allowing a sufficient period of transition across all policies. On the supply side, the influence of the utilities and the relative importance placed on investment here by DECC has at least ensured some form of transition. However, for the demand side, the lack of any transition is an appallingly short-sighted approach that, through its impacts on industry, only manages to make it more difficult for their preferred policy mix to succeed. Potential policy failure bears the risk of increasing perceptions that energy efficiency is too difficult undermining the objectives of policy reform.

## Conclusions

Generally, the introduction of innovative and less interventionist instruments can potentially address the challenge of raising additional finance in times of constrained public budgets. However, because the consequences of a new policy are unknown at the policy design stage, Schofield (2004, p. 304) suggests that an important question is 'what is the degree of allowable risk which the public themselves and those in the public sector are happy to tolerate in terms of not knowing the consequences of policy until it is actioned?'

One possibility of avoiding the risk of policy failure when introducing new and untested policy instruments is to follow a process of 'staged implementation' (Schneider and Ingram, 1988, p. 72). **Benefits of such an approach include the opportunity to monitor the effects of the policy and its contribution to the overall policy goals, to build up capacities within the implementing agencies and regulated entities, and to understand how the new instrument interacts with the existing policy mix.** At the same time, existing policies that have a history of success (in the sense that they achieved their objectives) can be preserved as long as the new policy instrument proves effective.

The urgency with which energy security, rising bills and, in particular, climate change need to be addressed make it important that Government implement sensible and coherent energy policies. Yet that does not mean that policy changes should be rushed or abrupt. In fact this proves counterproductive. Allowing business, industry and Government themselves to understand a policy before revoking its predecessor is vital to breeding the confidence needed for investment – and in order to allow the evolution of the policy in the correct way. We urge decision makers in the UK and elsewhere to embrace the old adage: 'more haste, less speed.'

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